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009872508 **Image available**
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Anisotropic etching of silicon substrates - using a polymerisation process in between etching stages to protect lateral edges of the etched shape

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Number of Countries: 018 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 4241045	C1	19940526	DE 4241045	A	19921205	199419 B
WO 9414187	A1	19940623	WO 93DE1129	A	19931127	199426
EP 625285	A1	19941123	WO 93DE1129	A	19931127	199445
		EP 94900729	A	19931127		
JP 7503815	W	19950420	WO 93DE1129	A	19931127	199524
		JP 94513639	A	19931127		
US 5501893	A	19960326	WO 93DE1129	A	19931127	199618
		US 94284490	A	19940805		
EP 625285	B1	20000322	WO 93DE1129	A	19931127	200019
		EP 94900729	A	19931127		

Priority Applications (No Type Date): DE 4241045 A 19921205

Cited Patents: 03Jnl.Ref; EP 200951; EP 363982; EP 383570; EP 497023; JP 3129820; US 4579623; WO 8809830

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

DE 4241045 C1 5 C23F-004/00

EP 625285 B1 G H01L-021/306 Based on patent WO 9414187

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JP 7503815 W 7 H01L-021/3065 Based on patent WO 9414187

US 5501893 A 6 C25F-003/12 Based on patent WO 9414187

Abstract (Basic): DE 4241045 C

Anisotropic etching of silicon substrates is carried out using alternating etching and polymerisation steps which are controlled independently. After etching, the front etched surface are polymer coated to be partially removed during a subsequent etching stage.

USE/ADVANTAGE - In semi-computer industry. By continuously altering the sides of an etched shape, the etching process becomes highly anisotropic and therefore highly selective.

Dwg.1/1

Abstract (Equivalent): US 5501893 A

A method of anisotropic plasma etching of silicon to provide laterally defined recess structures therein through an etching mask employing a plasma, the method comprising:

(a) anisotropic plasma etching in an etching step a surface of the

silicon by contact with a reactive etching gas to removed material from the surface of the silicon and provide exposed surfaces;

(b) polymerizing in a polymerizing step at least one polymer former contained in the plasma onto the surface of the silicon during which the surfaces that were exposed in a preceding etching step are covered by a polymer layer thereby forming a temporary etching stop; and

(c) alternately repeating the etching step and the polymerizing step.

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Title Terms: ANISOTROPE; ETCH; SILICON; SUBSTRATE; POLYMERISE; PROCESS; ETCH; STAGE; PROTECT; LATERAL; EDGE; ETCH; SHAPE

Derwent Class: A85; L03; P78; U11

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International Patent Class (Additional): B44C-001/22; C30B-033/12; H01L-021/308

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Manual Codes (EPI/S-X): U11-C07A1; U11-C07C1

Polymer Indexing (PS):

<01>

001 017; G1990 G1978 D01 7A D11 D10 D50 D69 D81 F-; H0000; P0044; P1854
; L9999 L2573 L2506; L9999 L2299; L9999 L2562 L2506

002 017; ND01; ND07; ND03; Q9999 Q7114-R; Q9999 Q7476 Q7330; K9472;
K9585 K9483; K9687 K9676; K9712 K9676; N9999 N7158 N7034 N7023;
K9427; B9999 B5469 B5403 B5276; N9999 N7181 N7023; K9381

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